

LIII.—On the Tribe Colletieæ, with some Observations on the Structure of the Seed in the Family of the Rhamnaceæ. By JOHN MIERS, F.R.S., F.L.S. &c.

[Continued from p. 381.]

Division 3. Clithrocarpæ. Flores petaliferi; fructus nucamentaceus et lignosus aut membranaceus, fere semper indehiscens.

6. RETAMILIA.

This genus is very distinct from all others of this tribe, differing in its peculiar virgate habit, its almost aphyllous Ephedra-like erect branches; the reduction of its disk to the size of a mere torus, or stipitate support of the ovary; and its large, spherical, thick, nuciform fruit. The name of *Retanilla* was first applied (in 1825) by DeCandolle, in his Prodrômus (ii. 28), to a section of the genus *Colletia*, under which he arranged two plants, distinguished from others of that genus by the presence of petals and the absence of the conspicuous disk: these were the *Rhamnus Retamilla* and *Rhamnus Ephedra* of Dombey, both collected by him in Chile,—Ventenat having previously described both plants as species of *Colletia*. Brongniart (in 1827) adopted the suggestion of DeCandolle, in his Monograph of the *Rhamnaceæ*, and established the genus *Retanilla* for the same plants, making the type of his genus the *Colletia obcordata*, Vent. (identical with *Rhamnus Retamilla*, Domb.).

There has been an error, originating with DeCandolle (Prodr. ii. 28), in converting Dombey's Spanish name, *Retamilla*, into *Retanilla*, the former being the diminutive of *Retama*, or common Broom of Europe, which resembles the Chilean plant in its almost leafless virgate stems; but, as the Spanish *ll* has invariably a liquid pronunciation, it is desirable to correct the spelling in harmony with it, and thus *Retamilia* becomes the more appropriate name. One of the peculiarities of the genus consists in the structure of its fruit, which is much larger than in any other genus of the tribe, is somewhat drupaceous, with a fleshy epicarp that becomes coriaceous, and incloses a hard, ligneous, indehiscient nut, the partitions between its cells being very thick and woody; it is smooth, with three slight furrows, corresponding with the lines of the dissepiments; the transverse disposition of the woody fibres of the thick endocarp appears a constant character, worthy of notice. As previously mentioned, Brongniart quotes this as one of the few genera of the *Rhamnaceæ* in which stipules are wanting; but in all the specimens I have seen they are certainly developed in the manner peculiar to most of the *Colletieæ*. The generic character is emended in the following manner:—

RETAMILIA, Brongn. *Molinæa*, Comm.—*Calyx* tubuloso-campulatus, carnosulus, limbo 4-5-fido, laciniis triangularibus, erectis, intus carina calloque apicali notatis, æstivatione valvatis, tubo infra medium intus piloso, pilis patentibus, demum caducus. *Petala* 4-5, erecta, laciniis alterna et æquilonga, in os tubi cum staminibus inserta, obovata, unguiculata, concava, cucullata. *Stamina* 4-5, petalis opposita et iis recondita; *filamenta* subulata, glabra, apice inflexa; *antheræ* rotundatæ, reniformes, 2-valves (valva antica brevior), circa connectivum carnosum reniforme semi-annulares, rima hippocrepica hiantes, demum peltatim expansæ, et tunc disciformes, medio umbonatæ. *Discus* fere obsoletus, vix ultra ovarii basin extensus. *Ovarium* conico-oblongum, 3-loculare; *ovula* in loculis solitaria, erecta. *Stylus* erectus, calyce dimidio brevior. *Stigma* fere obsoletum, obtuse 3-punctatum. *Fructus* globosus, pro mole majusculus, baccatus; sarcocarpium spongioso-carnosum, demum siccum et crasso-coriaceum: nux sphærica, 3-sulcata, dura, lignea, crassa, indehiscens, 3-locularis, loculis monospermis. *Semen* erectum, ovatum, subcompressum, structura omnino illius *Colleticæ*.

Suffrutices *Chilenses dumosi*, ramis ramulisque *longissime virgatis, teretibus, erectis, fere aphyllis, inermibus, nodis distantibus*; stipulæ *oppositæ, parvulæ, squamiformes, gibbosæ, acutæ, fuscæ, linea transversali prominula utrinque connexæ*; folia *opposita, minuta, caducissima, spathulato-oblonga*; flores *albi, oppositi, hinc distantiores et utrinque solitarii in ramulis novellis enati, vel in gemmam squamosam axillarem capitato-agglomerati*.

1. *Retamilia obcordata*, Brongn. Ann. Sc. Nat. x. 364. tab. 14; —*Colletia obcordata*, Vent. Hort. Cels. tab. 92; *Poiret in Lam. Dict. Suppl.* ii. 311; —*Colletia* (*Retanilla*) *obcordata*, DC. Prodr. ii. 28; —*Rhamnus Retamilla*, Domb. MSS.; — suffruticosa, 3-pedalis, ramis ramulisque erectis, virgatis, flexilibus, apice mucrone apiculatis, junioribus albo-tomentosis, demum glabris, nodis remotis, quasi articulatis propter stipulas 2 oppositas majusculas acutas adpressas demum patententes inter se nexas; ramulis rarius abortivis, brevibus, et tunc spiniformibus; foliis oppositis, raris, cito caducis, inferioribus obcordatis, in petiolum brevem cuneatis, superioribus spathulato-ovatis, pubescentibus, 3-nerviis, pallide viridibus; floribus plurimis, fere sessilibus, glomerato-fasciculatis, vel sæpe interrupte spicatis; calyce urceolato, fulvo, extus villosulo, intus imo puberulo, limbi laciniis 5, acutis, erectis; petalis 5, cucullatis, unguiculatis, laciniis fere æquilongis; staminibus reconditis, antheris apertis peltiformibus; ovario pubescente.—Chile.

—*v. s. in herb. Mus. Paris* (Ventenat) ex specimine culto cum notula "Pérou" (sine dubio erronea).

I am not aware of the existence of any indigenous specimen; nor is the exact place of its growth known. The species was established by Ventenat, who made his drawing above quoted from a plant raised from seeds brought home by Dombey, first cultivated by M. Cels, and afterwards in the Jardin des Plantes, where Poiret also saw it growing. The specimen now in the Paris herbarium, which I have seen, was contributed by Ventenat: his drawing well accords with it. It is described as a shrub having much the appearance of a *Spartium*, growing to the height of 3 feet. In the structure of its flower it quite agrees with that of the two following species, the characters of which are better known; the only negative feature attached to it is the account recorded by Ventenat of its fruit, which is said to be 3-coccous, and therefore at variance with the structure known to exist in the other species and in *Trevoa*; but as it is very improbable that the fruit ever ripened in Paris, and as in the immature state it was found to be trilocular, we may conclude that it was only assumed to be 3-coccous, like the other known species of *Colletia*, to which genus it was thought to belong. Ventenat, on the other hand, mentions its fleshy mesocarp, which becomes coriaceous in drying, as I have found it in *R. stricta*.

2. *Retamilia Ephedra*, Brongn. Ann. Sc. Nat. x. 365; Hook. Bot. Misc. i. 157; *ibid.* iii. 173;—*Colletia Ephedra*, Vent. (*non Bert.*) *Choix*, tab. 16; *Lodd. Bot. Cab.* pl. 1820;—*Rhamnus Ephedra*, *Domb. MSS.*;—suffruticosa, dumosa, ramulis imo spinosis, superne inermibus, valde strictis, virgatis, compresso-teretibus, forte striatis, cortice carnosio vestitis, junioribus albido-tomentosis, demum glabris; nodis distantibus, stipuliferis, stipulis oppositis, gibbo-squamiformibus, fuscis, acutis, utrinque linea transversali nexis; foliis nullis, aut caducissimis; floribus plurimis, in capitulum subglobosum sessile utrinque axillare aggregatis, aut paucioribus, in spicam brevissimam enatis; pedunculo brevissimo, calyce urceolato, roseo-albido, extus pubescente, tubo intus imo piloso, pilis longis patentibus, limbi laciniis 4, brevibus, erectis, petalis 4, niveis, oblongis, unguiculatis, cucullatis, erectis, staminibus totidem, vix æquilongis, ovario conico-oblongo, piloso, stylo brevi, crassiusculo, ad medium attingente; fructu globoso.—Chile.—*v. s. in herb. meo*; Chile (Ruiz & Pavon), sine loco designato;—*in herb. Mus. Paris* (specim. typicum, Dombey); "Pérou," potius Chile;—*in herb. Hook.*; in convallibus Andium Chilensium; Concepcion (Lay & Collie); Chile, sine loco (Cuming, 704).

This is a well-established species; its *Ephedra*-like branches

are rather stout, equal in thickness throughout, of considerable length, and about a line in diameter, the nodes being about $1-1\frac{1}{2}$ inch apart; occasionally a few spines (or stunted branchlets) are seen, which are nearly erect, deeply striated, with a callous, pungent apex, and are $1-1\frac{1}{4}$ inch long. A capitate inflorescence is seen in the opposite axils of each node of the virgate branches; it is about $\frac{1}{2}$ inch in diameter, and consists of an aggregation of small flowers; the peduncles are extremely short; the calycine tube is 1 line long, its segments being $\frac{1}{3}$ line in length, it is $1\frac{1}{4}$ line in diameter*.

3. *Retamilla stricta*, Hook. Arn. Bot. Misc. iii. 173;—*Retanilla affinis*, Clos, in Gay, *Chile*, ii. 26;—suffruticosa, sesquiorgyalis, ramosa, ramis e basi plurimis, assurgentibus, ramulis strictis, virgatis, rigidis, erectis, glabris, teretibus, striatulis, fere aphyllis, nodis remotis; foliis oppositis, parvulis, rarissimis, caducissimis, spathulato-oblongis, carnosis, pilosiusculis, lateribus canaliculatim reflexis, breviter petiolatis; stipulis axillaribus, gibboso-squamiformibus, fuscis, acutis, oppositis, et utrinque linea transversali nexis; ramulo florifero brevi, aphylo, racemiformi, nodis crebris, floriferis, squamis oppositis munitis; floribus ibi oppositis, solitariis, et hinc quasi racemoso-spicatis; calyce late cylindrico, carnosio, roseo-albido, extus glabro, intus imo piloso, pilis patentibus, limbi laciniis 5, triangularibus, erectis, demum e basi caduco; petalis 5, laciniis æquilongis, ovatis, cucullatis, unguiculatis, erectis, niveis; staminibus totidem, petalis reconditis, demum inflexis; ovario oblongo, 3-4-sulcato, stylo incrassato, subulato, tereti, longitudine fere tubi, pilosissimo, pilis longis, albis, creberrimis, patentibus; stigmate 3-4-lobo, lobis obtusis, adpressis; fructu globoso, cortice coriaceo, crasso, disco substipitiformi suffulto; nuce conformi, durissimo, indehiscente, lignoso, 3-, rarius 4-loculari, seminibus nitentibus.—Chile.—*v. v.* ad Quintero (*Retama* et *Retamilla* incolarum).—*v. s.* in herb. Hook.; Valparaiso (Cuming, 402);—in herb. Mus. Paris; in Prov. Cauquenes (Gay), vernac. *Frutilla del Campo*.

This species, as far as my observation extends, does not grow in the immediate neighbourhood of Valparaiso, but at a distance of twenty or thirty miles from that port, near the coast, where the violent surf and the strong incessant trade-wind produce elevated flats of considerable extent, formed of loose drift-sand carried to some distance in-shore; and it was only in such situations that I met with this shrub, growing among other trees and bushes. It is distinguished by well-marked characters from the preceding species. It grows to a height of 8 or 10 feet, with a

* This species will be shown in the 'Contributions,' Plate 39 D.

broom-like habit, having very long, straight, erect branches, more woody than in the preceding species, and all terminating in an acute spine. The stemlets are more slender, less deeply striated, with the internodes about $\frac{3}{4}$ inch apart; out of these nodes, in the younger branches, short foliiferous sprouts make their appearance, and out of the nodes of the upper part of the principal (annotinous?) branches, are produced the opposite spicated racemes of flowers, which are nearly the length of the internodes, bearing about three or four pairs of opposite flowers. The leaves are 1–1½ line long, only $\frac{1}{2}$ line broad, cuneate, upon a very short petiole, entire, fleshy, 3-nerved, slightly pubescent, and folded back upon themselves; the pedicels are $\frac{1}{2}$ line long, bracteated at base; the tube of the calyx, including the segments, is 1½ line long, and 1 line in diameter; the flowers are of a rose-colour. The fruit is spherical, 8 lines in diam.*

4. *Retamilia articulata*, n. sp.;—*Colletia articulata*, *Philippi*, *Linn.* xxviii. 679;—suffruticosa, glaberrima, ramis teretibus, lævibus, simpliciter intricatim spinosis, spinis longiusculis, ramulisque articulatim nodosis, creberrime granuloso-punctulatis, apice calloso-pungentibus; foliis in ramulis novellis parvulis, ovatis, utrinque acutis, integris, crassiusculis, eveniis, glaberrimis, caducissimis, petiolo canaliculato in sinum stipulæ 2-dentatæ affixo; stipulis oppositis, linea transversali nexis (nodis proinde quasi articulatis); floribus in articulationibus utrinque 2–4, fasciculatis, e tuberculo bracteato enatis, pedunculo flori æquilongo, calyce cylindrico, limbi laciniis 4, triangularibus, erectis; petalis 4, squamiformibus, acutis, laciniis dimidio brevioribus; staminibus totidem, filamentis incurvatis, brevissimis, antheris ovalibus, petalis 2-plo latoribus, rima hippocrepica hiantibus, peltatim affixis; stylo brevi, incluso; stigmatate capitato-3-lobo.—In Andibus Chilensibus versus Chillan (lat. 36° S.).—*v. s. in herb. meo et Hook.* (Germain).

This plant has much the habit of the three preceding species, but its branches are not so virgate, and have much shorter internodes: the branches, almost bare of leaves and spines, are quite terete, perfectly smooth, the internodes being $\frac{1}{2}$ to $\frac{3}{4}$ inch apart; the spines are 8 to 12 lines long, the floriferous branchlets are twice or three times that length, having the appearance of articulated spines, and are often again spinose. The stipules at the nodes are small, simple, and acute, and the line of their connexion gives an articulated appearance to the branches. Very young branchlets, bearing leaves and flowers, grow out of the upper nodes, and, from the proximity of the axils, they appear

* A representation of this species, with analytical details, will be given in the 'Contributions,' Plate 39 E.

almost agglomerated: the leaves are very small, ovate, or oblong, fleshy, nerveless, and obsolete toothed on their margin, tapering into a short petiole; they are $1\frac{1}{2}$ line long, 1 line broad, in opposite pairs upon a slender nascent shoot about $\frac{3}{4}$ inch long. From the axils and the articulations of the spines a short sprout is seen, bearing a few leaves and two or four flowers, which are almost fasciculated; the pedicels are a full line long; the cylindrical tube of the calyx is $1\frac{1}{2}$ line long, with four segments of a quarter their length; the petals are like small white scales, intermediate with the segments, and only a quarter of their length; the anthers are like those of the preceding species; the ovary and style are glabrous. The flowers are pale when dried, and are probably nearly of a white colour when fresh*.

7. TREVOA.

This genus, first proposed by me (in 1825), was afterwards described by Sir William Hooker (in 1830), in the 'Botanical Miscellany,' where it is confounded with *Talguenea*; he subsequently (in 1833) suppressed the genus, referring the plant on which it was founded to *Retamilia*, because of its indehiscent fruit. In *Trevoa*, however, we have a tree of very hard wood, spreading into numerous thick tortuous branches, and equally tortuous branchlets, which are very spiny, with an abundant foliage, offering a strong contrast to the bare Ephedra-like branches of *Retamilia*. In *Trevoa* the calyx is persistent, does not enlarge, but remains withered, entire, and membranaceous, at the base of its fleshy drupe; while in *Retamilia* the whole of the calyx falls away, leaving its short stipitate torus (or small adnate disk) to support a much larger globular fruit. The form of the calyx is also dissimilar in the two genera, and the petals are larger and more cucullate. In the species on which I founded the genus, the ovary is uniformly bilocular, producing a small 2-celled fruit, often by abortion 1-locular: another species, which Sir William Hooker had inferred to be identical with mine, has a 3-celled ovary, producing a larger 3-celled nut, which circumstance induced that distinguished botanist to merge the genus into *Retamilia*; but the characters above mentioned are sufficient to keep them distinct. There is, however, another distinguishing feature in the shape of the stipules, which in *Trevoa* are deeply bifid, forming a small fuscous linear kind of wing attached to each side of the petiole, of nearly equal length, by which they are attached to the stem; and the bases of the opposite petioles are connected on each side by a transverse line across the stem.

By other botanists *Trevoa* has been confounded with *Talguenea*; but the differences here are yet more strongly marked: the latter

* This plant will be shown in the 'Contributions,' Plate 39 f.

has not only a distinct form of calyx, but it is quite dissimilar in the structure of its fruit, which is enclosed in the entire unchanged persistent calyx, and which consists of an evalvate indehiscent membranaceous pericarp that bursts by laceration, only to allow of the escape of the seeds. The name of the genus was derived from the vernacular appellation of the typical species, *Trévo* or *Trébu*. Its character is thus defined:—

TRÉVOA, nob.—*Calyx* petaloideus, tubulosus, tubo imo inflato, medio sæpe constricto, fauce paulo ampliore, intus præsertim versus basin villosissimo, pilis albidis retrorsis, limbi laciniis 4 vel 5, triangularibus, erectiusculis, intus carina calloque notatis, marcescens et persistens. *Petala* 4–5, rotundata, cucullata, unguiculata, laciniis calycinis breviora, erecta. *Stamina* 4–5, petalis inclusa, et cum eorum unguibus inter lacinias inserta; *filamenta* brevia, pilosa, imo complanata, subulata, apice repente inflexa; *antheræ* rotundatæ, eis *Retamiliæ* similes. *Discus* parvus, carnosus, ovario 3-plo latior, subconcauus, adnatus. *Ovarium* e medio disci superum, conico-oblongum, 2–3-sulcatum, hirsutissimum, 2–3-loculare. *Stylus* erectus, 3–4-gonus, angulis ciliatis, imo validiusculus et hirsutissimus. *Stigma* 2–3-lobum, lobis obtusis arcte adpressis, albidum. *Fructus* drupaceus, ovatus, subcompressus, calyce marcido imo suffultus, endocarpio indehiscente nucamentaceo, 2–3-loculare, vel abortu uniloculare. *Semen* in quoque loculo solitarium, erectum, compresso-ovatum, nitidissimum, structura omnino *Colletieæ*.

Arbusculæ *Chilenses frondosæ, ramosissimæ, spinosæ, trunci ligno duro, ramis oppositis, ramulis infra spinas foliiferis et floriferis, spinis oppositis; folia opposita, ovata, serrulata, 3-nervia, fere glabra; flores e ramulis junioribus enati, in axillis oppositis solitarii, vel 2–3, fasciculati, hinc foliis carentibus sæpe racemosi, aut axillis approximatis quasi spicati.*

1. *Trevoa trinervis*, nob. Trav. ii. 529;—*T. trinervia*, Hook. Bot. Misc. i. 159;—*Retanilla trinervia*, Hook. in parte, *ibid.* iii. 174;—*Colletia Trebu*, Bert.; *Colla*, Mem. *Torin.* 37. p. 53;—arbuscula sesquiorgyalis, ligno duro rubente, ramosa, ramulis compressis, foliosis, spinosis, junioribus inermibus foliiferis et floriferis sub spinis enatis; spinis viridibus, decussatim oppositis, compresso-subulatis, calloso-pungentibus, patentissimis; foliis oppositis, ovalibus, mucronulatis, imo in petiolum cuneatis, crenulato-dentatis, 3-nervibus, nervis pellucidis subparallelis, lateralibus versus marginem ramosis, et hinc in glandulas marginales excurrentibus, reticulato-venosis, glabriusculis, petiolo brevi, canaliculato, singulis e stipula fusca bifida ortis; floribus interdum quasi spicatis; pedunculo brevissimo, piloso;

calyce extus superne subgloboso, albescente, imo inflato, viridi et piloso, limbi laciniis 4, erectiusculis; petalis 4, niveis, laciniis brevioribus; staminibus 4, inclusis; antheris reniformibus, flavis, connectivo albo; stylo ovarioque 2-loculari pilosissimis; fructu ovali, subcarnoso, calyce marcido fulto; nuce ovata, 2-loculari, sæpe abortu 1-loculari.—Chile.—*v. v.* ad Concon.—*v. s.* in herb. Hook. (Cuming, 732).

This tree is of frequent occurrence upon the hills throughout the province of Quillota, in which the port of Valparaiso is situated, and is, I believe, more generally distributed, at no great distance from the sea-coast, in the central provinces of Chile: sometimes it appears as a tall bush, but it grows ordinarily to the height of 8 or 10 feet, with widely-spreading branches. Its trunk, scarcely exceeding 4 or 6 inches in diameter, consists of hard red wood, which is much sought for, as it makes an excellent fuel; it is also greatly in request for building purposes. Its spreading, opposite, subulate, green spines, which decussate at the distance of half an inch apart, are from half an inch to 1 inch in length. A single leaf issues from its corresponding stipule, that springs from the base of each spine. The leaves ordinarily measure $\frac{3}{4}$ inch, sometimes an inch in length, and 3 or 4 lines in breadth, the petiole being 1 line long. Each floriferous branch usually originates from the expansion of a tubercle situated between the spine and the stipule, and is commonly from $1\frac{1}{2}$ to 3 inches long, with several decussating pairs of leaves towards its base, at distinct intervals of 1 to 3 lines, at each of which points two or four flowers arise, the leaves gradually disappearing towards the ends of these branchlets, the axils then approximating by degrees, so that the flowers assume a spicate appearance; each flower is from $1\frac{1}{2}$ to 2 lines long, on a peduncle less than a quarter of a line in length; the calyx is of a yellowish-white colour, is somewhat contracted in the middle, glabrous in the upper part, the inflated base and peduncle being of a greenish hue and pubescent; it is constantly 4-toothed on its border, all its parts being 4-merous, and the hooded petals snow-white. Its somewhat compressed oval drupe, enclosing a hard nut, is 2 lines long, and $1\frac{1}{2}$ line in diameter; the nut is ligneous and indehiscent*. Cuming's specimen in Sir William Hooker's herbarium is not in seed. Germain's plant, distributed under the name of *Trevoa 3-nervia*, is *Notophæna foliosa*.

2. *Trevoa tenuis*, n. sp.;—*Retanilla 3-nervia*, Hook. & Arn. in parte, Bot. Misc. iii. 174;—arbuscula præcedentis simillima, sed omnino pilosior, spinosa, ramulis sub-4-gonis, tenuibus,

* This plant, with analytical details, will be shown in the 'Contributions,' Plate 40 A.

compressiusculis, pallide viridibus, glaberrimis, junioribus sæpe spinosis, spinis longiusculis, decussatim oppositis, simplicibus; foliis oppositis, ovalibus, imo in petiolum brevem attenuatis, integris, aut crenulato-dentatis, 3-nerviis, margine glanduliferis, glabris, junioribus utrinque pilosulis, et pulvere resinoso flavicantibus; floribus binis in axillis oppositis, et in ramulis novellis, foliorum defectu, sæpe glomerato-spicatis; calyce colorato, late cylindrico, haud constricto, extus valde pubescente, intus imo piloso; limbi laciniis 5, brevibus, erectiusculis, cum petalis 5, æquilongis, niveis, cucullatis, alternis; staminibus totidem, petalis inclusis, et iis dimidio brevioribus; filamentis brevibus, in lineis totidem patenti-pilosis decurrentibus; stylo brevi ovarioque 3-loculari longe patenti-pilosis, stigmatibus 3, oblongis, obtusis, adpressis, glabris; drupa carnosula, præcedentis 4-plo majore, ovata, nuce dura, crassiter lignosa, 3-loculari.—Chile.—*v. s. in herb. Hook.*; Bustamante, in via ad Santiago, alt. 2000 ped. (Bridges, 435; Cuming, 641).

This species is unquestionably distinct from the preceding, though much resembling it in general aspect; it is, however, much more spiny, its branchlets are thinner and straighter, its spines longer and more slender, its leaves smaller and more caducous. The internodes are $1\frac{1}{4}$ inch apart, the spines $1\frac{1}{4}$ – $1\frac{1}{2}$ inch long; those of the lateral spinose branchlets are about $\frac{3}{4}$ inch long; the floriferous branchlets are $1\frac{1}{2}$ inch long, the axils being from 1 to 3 lines apart. The leaves are 3–5 lines long, and 2 lines broad, upon a petiole 1 line in length; its flowers are constantly 5-merous; its calyx, 2 lines long, is double the diameter of that of the former species, and is scarcely contracted in the middle; externally it is very pubescent, its ovary is always 3-locular (not 2-celled), and it produces a much larger fruit, which is two or three times the size of that of *T. trinervis*, being 4 or 5 lines long, and 3 or 4 lines in diameter: the ligneous walls of its 3-locular nut are thicker than in the foregoing species. In other respects both kinds are much alike. It appears to grow further away from the coast, upon the more elevated table-lands, and in the valleys of the interior*.

3. *Trevoa Berteroana*.—Retanilla spinifer, Clos, in Gay, Chile, ii. 27;—spinosa, ramulis rectis, tenuibus, striatulis, glabris, fusco-viridibus, ortis sub spinis; spinis oppositis, tenuibus, subulatis, calloso-acicularibus, paulo patentibus; foliis oppositis, vel sæpe in axillis utrinque binis, cuneato-ovatis, vel obcordatis, apice obtusis, retusis et mucronulatis, integris vel

* This species will be represented in the 'Contributions,' Plate 40 B.

obsolete dentatis, 3-nerviis, utrinque sparsim puberulis, supra viridibus, subtus albido-pulverulentis, nervis rubescentibus, pellucidis; petiolo brevi canaliculato; stipulis distinctis, oppositis, patentibus, rubellis, obsolete 2-dentatis; floribus parvis, in axillis ramulorum 1 vel 2, pedunculo brevi, puberulo; calyce breviter tubuloso, extus imo puberulo, superne glabro, intus valde piloso, limbi laciniis 4, brevissimis, subpatentibus, petalis 4, laciniis æquilongis, orbicularibus, cucullatis, antheris iis inclusis; drupa sicca ovali, mole fructus *T. trinervis*, apice retrorsum albido-pilosa, imo calyce marcido fulta, nuce 1-3-loculari.—Chile, in montibus Prov. Rancagua et Colchagua.—*v. s. in herb. Mus. Paris.* Rancagua (Bertero, 193).

The plant described by Dr. Clos (Gay's specimen from the same locality), and referred by him to *Retamilia*, is evidently identical with the above species, which I have characterized from Bertero's collection. I do not adopt his specific name, as all the species of *Trevoa* are spinigerous*.

4. *Trevoa Weddelliana*, n. sp.; — suffruticosa, spinosa, ramosa, ramulis teretibus, brachiatis, breviter pubescentibus, pilis patentibus; spinis decussatim oppositis, subulatis, pungentibus, divergentibus, sæpe foliosis; ramulis junioribus foliiferis et floriferis, sæpe inermibus; foliis oppositis, ovatis, integris, parvulis, vernatione complicatis, læte viridibus, subtus pallidioribus, utrinque parce pubescentibus, nervis paucis superne immersis, inferne vix prominulis, inter se arcuatim nexis et rubellis; stipulis utrinque profunde bifidis, laciniis anguste linearibus, imo petioli adnatis, rubellis, pilosulis; floribus 2-3 folio æquilongis, pedunculo imo bracteolato, calycis tubo urceolato, imo subgloboso, puberulo, limbi laciniis 5, reflexis, tubi tertia parte longitudinis, apice intus callo carinaque mediana notatis, carinis pilosulis ad basin tubi decurrentibus; petalis 5, obovatis, cucullatis, imo unguiculatis, laciniis æquantibus, erectis; staminibus iis reconditis; disco poculiformi, omnino adnato; ovario subglabro; stylo erecto, piloso, faucem tubi attingente; stigmatibus 3-lobis.—Bolivia, circa Chuquisaca.—*v. s. in herb. Mus. Paris* (Weddell, 1212).

This plant greatly resembles *T. trinervis* in habit, but it has much smaller leaves, and is altogether more spinose. The internodes are 8-9 lines apart; the spreading, decussating spines are about the same length; the foliiferous branchlets are from $\frac{1}{2}$ inch to $2\frac{1}{2}$ inches long, bearing about two flowers in the lower axils; the leaves are 3 lines long and $1\frac{1}{2}$ line broad, on a petiole

* A figure of this plant will be given in the same work, Plate 40 c.

of 1 line in length; the peduncle is $1\frac{1}{2}$ line long, the tube of the calyx $1\frac{1}{4}$ line long, retrorsely puberulous; the segments are $\frac{3}{4}$ line in length; the nervures within the calyx are retrorsely pilose, as in *T. trinervis*; the ovary and style are nearly glabrous, and included*.

5. *Trevoa Closiana*. *Colletia tetrandra*, Clos, in Gay, *Chile*, ii. 31;—fruticosa, 2-pedalis, dumosa, ramis subaphyllis, intricato-curvatis, fusco-nigricantibus, rigide spinosis, spinis decussatim oppositis, subulatis, crassiusculis, simplicibus; foliis minimis, caducissimis, lineari-oblongis, crassis, 3-nerviis, fere integris, margine obsolete crenato, superne obscure viridibus, lucidis, sparsim pilosis, subtus flavido-pallidis et dense pilosis, breviter petiolatis; stipulis majusculis, squamiformibus, imo subamplexicaulibus, valde concavis, rubris, glabris, intus parce tomentosus, 2-dentatis; floribus paucis, e gemma ad basin spinarum versus extremitatem ramorum enatis; pedunculo brevissimo, albo-tomentoso, calyce urceolato, imo extus cinereo-piloso, limbi laciniis 4, erectis; petalis 4, oblongis, valde cucullatis, unguiculatis, laciniis æquilongis, erectis, imo subcoloratis et puberulis; staminibus totidem, iis reconditis, demum inflexis; ovario niveo-piloso, sub-3-lobo; stylo brevi, tereti, pilosulo; stigmatibus obsolete 3-lobo.—Chile.—v. s. in *herb. Mus. Paris*; Coquimbo, in via ad Arqueros (Gay, 264).

Dr. Clos, on the authority of M. Gay, describes this as a low-growing shrub, about 2 feet high, with intricately twisted branches, which are armed with numerous simple spines, half an inch in length, and a similar distance apart. They are often leafless; the extremely deciduous leaves are very small, almost entire, or crenulated on their margin; they are linear-oblong, and 1 to 3 lines in length. The small white flowers, which become dark in drying, are 4-merous, and scarcely exceed a line in length, including their very short peduncle, and half a line in diameter. The stamens are hidden within the short cucullate petals, the anthers, after dehiscence, becoming peltate, as in the other species of the genus. It is known by its vernacular name of *Abrojo*, which in Spanish signifies a bramble. These characters are all quite in accordance with those of *Trevoa*†.

[To be continued.]

* This species will be represented in the 'Contributions,' Plate 40 D.

† A figure of this plant will be given in the same work, Plate 41 A.